

REMARKS

Status of the Claims

Claims 1, 3, 6, 9, 10, 12, 13, 16, 18-23, 39, 41, 44-48, 50, 52, 54, 56-62, 64, 65, 68, 69, 71, 72, 76, 78-83, and 111 are pending in this application, with claims 1, 39, and 62 being independent.

In the Office Action, claims 1, 6, 9, 10, 12, 13, 16, 18-23, 39, 44-48, 50, 52, 54, 56-62, 65, 68, 69, 71, 72, 76, 78-83, and 111 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Furusawa et al. (JP 2001/158464) ("Furusawa"). In addition, claims 3, 41, and 64 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Furusawa in view of Yuzuhara.

Attached is an English-language translation of Furusawa.

Rejections Under 35 U.S.C. § 103(a)

Applicant respectfully submits that the Office Action fails to establish a prima facie case of obviousness at least because, as discussed in greater detail below, the cited art does not disclose or suggest all of the claimed features and because one of ordinary skill in the art would not have had any reason to modify the Furusawa reference in the manner suggested in the Office Action.

Furusawa fails to disclose or suggest all the recited features of independent claims 1, 39, and 62. For example, as acknowledged at page 3 of the Office Action, Furusawa fails to disclose or suggest an applicator nozzle having an arrangement of teeth disposed in a row including first and second end teeth, "wherein the first and second end teeth are the only teeth in the row devoid of any outlet aperture" (hereinafter referred to as "the two-tooth arrangement"), as recited in independent claims 1, 39, and

62. The Office Action acknowledges that Furusawa discloses four teeth devoid of any outlet aperture (hereinafter referred to as “the four-tooth arrangement”) instead of the claimed two-tooth arrangement. Office Action at 3.

Applicant respectfully submits that the Office Action does not adequately support the assertions provided as rationale for modifying Furusawa. For example, the Office Action asserts that it “would have been an obvious matter of design choice . . . to construct two teeth . . . devoid of any outlet aperture . . . since such modification is [allegedly] old and [purportedly] provides the equivalent effect and function to the device” (*Id.*, emphasis added), but the Office Action does not provide any evidence supporting this allegation.

Moreover, Applicant respectfully submits that two-tooth and four-tooth arrangements are not equivalent in effect and function because the two-tooth arrangement provides benefits over the four-tooth arrangement. One such benefit is that the two-tooth arrangement enables easier and more precise application of product to the hair. Given that the apertures face in the direction of adjacent teeth, it may be more difficult during use to see exactly where the product is being applied on the hair. Therefore, it is beneficial to have a reference on the comb that helps to position the comb precisely on the hair. With a two-tooth arrangement, only one tooth at each end of the comb is devoid of apertures. Thus, the end teeth (without apertures) define the width of the zone where product will be applied. Accordingly, after applying product to a first area of hair with a first pass of the comb, the comb may be repositioned for a second pass in an area adjacent the first area such that an end tooth is at the edge of the first area to which the product has been applied with the first pass. This may be

relatively easy to accomplish because only the outermost tooth need be positioned at the edge of the first area.

In contrast, in a four-tooth arrangement, two teeth at each end of the comb are provided without apertures. Therefore, it is not the outermost teeth, but the teeth second from each end that define the width of the zone where product will be applied. Applying product using a comb having a four-tooth arrangement is less intuitive and somewhat more difficult than with a comb having a two-tooth arrangement because with a four-tooth arrangement, the second tooth from the end must be positioned at the edge of the zone in which product was previously applied. That is, the comb must overlap the zone in which product was previously applied. Further, visualizing the second tooth from the end is somewhat more difficult than visualizing the location of the outermost tooth of a comb, particularly when viewed from certain angles.

For at least these reasons, Applicant respectfully submits that, contrary to the assertions in the Office Action, the four-tooth arrangement of Furusawa is not equivalent in effect or function. Aside from the alleged equivalence in effect and function, the Office Action provides no other reason for the proposed hypothetical modification of the comb of Furusawa to have an arrangement of teeth “wherein the first and second end teeth are the only teeth in the row devoid of any outlet aperture,” as recited in independent claims 1, 39, and 62. Accordingly, the Office Action does not provide any rationale for modifying Furusawa that is sufficient to establish a *prima facie* case of obviousness. Therefore, Applicant respectfully submits that the § 103(a) rejection of independent claims 1, 39, and 62 should be withdrawn.

Conclusion

Applicant respectfully submits that each of independent claims 1, 39, and 62 is allowable over the cited art. In addition, each of dependent claims 3, 6, 9, 10, 12, 13, 16, 18-23, 41, 44-48, 50, 52, 54, 56-61, 64, 65, 68, 69, 71, 72, 76, 78-83, and 111 depends from one of independent claims 1, 39, and 62. Accordingly, each of these dependent claims is allowable for at least the same reasons as the independent claim from which it respectively depends. In addition, these dependent claims contain limitations that further distinguish from the cited art.

In view of the foregoing remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Notwithstanding the preceding remarks relating to the cited art, the pending claims may include other elements or limitations that are not shown, taught, or suggested by the cited art. Accordingly, the preceding arguments in favor of patentability are advanced without prejudice to other bases of patentability. Furthermore, Applicant declines to automatically subscribe to any of the Office Action's statements or characterizations of the cited art and/or claims, regardless of whether any such statement or characterization is identified herein.

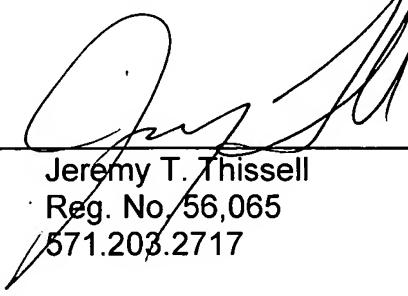
If a telephone conversation might advance prosecution, the Examiner is invited to call Applicant's attorney (571-203-2717).

Please grant any additional extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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571.203.2717

Attachment: English-language translation of JP 2001/158464

**JAPANESE PATENT APPLICATION,
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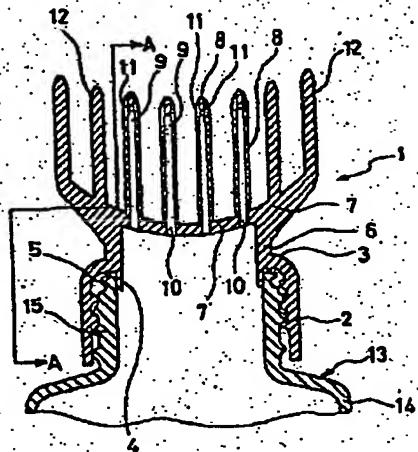
PUBLICATION DATE: 12 June 2001

TITLE Cap with Comb
APPLICATION № H11-339603
FILING DATE 30 November 1999
APPLICANT(S) YOSHINO KOGYOSHO CO., LTD.
INVENTOR(S) Mitsuo FURUSAWA and Tsugio ARAI

ABSTRACT

PROBLEM To integrally mold a cap with a comb comprising comb tooth pieces having dispensing holes and framing comb tooth pieces at the sides thereof, thereby to raise the safety and dispensing fluidity, improve sanitation and appearance, and further reduce the production costs.

SOLUTION A cap with a comb integrally molded from a synthetic resin, wherein comb tooth pieces 8 having dispensing holes 9 opening in left-right directions at the upper ends thereof are provided with mold release vertical grooves 11 having a groove width at last equal to the lateral width of the apertures of the dispensing holes 9, extending from the dispensing holes 9 to the upper ends thereof, and dispensing channels 10 are formed from the dispensing holes 9 to a lower surface of a top plate 7.



CLAIMS

1. A comb with a cap integrally molded from a synthetic resin material, formed by:
erecting an upright tube (6) that is flattened in front and rear through a flange-shaped top wall (3) at the upper end of an attachment tube (2) fitting tightly over a mouth tube portion (15) of a squeezable container body (18), providing a plurality of comb tooth pieces (8) that are evenly spaced in a line in the left-right direction towards the center of an upper surface of a top plate (7) provided on the upper end of said upright tube (6), and providing frame comb tooth pieces (12) at end portions of said top plate (7), wherein said comb tooth pieces (8) have dispensing holes (9) opening in the left-right direction at upper ends thereof and have dispensing channels (10) penetrating from said dispensing holes (9) to a lower surface of said top plate (7), and are provided with mold release vertical grooves (11) with groove widths at least equal to the lateral width of the openings of said dispensing holes (9) at left-right portions thereof from said dispensing holes (9) to the upper ends.
2. A comb with a cap in accordance with claim 1, wherein the tips of the comb tooth pieces (8) and the frame comb tooth pieces (12) are arranged along a preset radius of curvature based on the radius of curvature of the surface of the human head.

DETAILED DESCRIPTION OF THE INVENTION

[0001]

TECHNICAL FIELD OF THE INVENTION

The present invention relates to a cap with a comb constructed so as to enable a content fluid such as white hair dyeing solution or hair manicure stored in a container to be applied directly from the container onto the hair.

[0002]

CONVENTIONAL ART

As caps with combs that are attached as caps onto squeezable containers to enable content fluid such as white hair dyeing solution or hair manicure stored in a container to be applied directly from the container onto the hair, there have been proposals for structures having the comb tooth pieces in the comb functioning portion positioned at the upper end of the container body extending in a vertical direction as opposed to conventional structures with comb tooth pieces protruding horizontally.

[0003]

Since the conventional caps with combs described above have a structure wherein the comb function portion formed by the comb teeth is positioned directly above the container when the

comb teeth are oriented upright, even at portions of the hair that cannot be seen, the comb function portion can easily be brought correctly opposite a desired portion of the hair by feeling with the hand holding the container, thereby enabling the content fluid to be satisfactorily and easily applied to the desired portion of the hair, while also orienting the dispensing channels which are the supply routes for content fluid with respect to the comb tooth portions forming the comb function portion in a direction perpendicular to the direction of exit of the content fluid from the container, so as to form "reservoir" portions in front of the dispensing channels which enable content fluid to be distributed to the dispensing channels with equal dispensing pressure, thus making the amount of content fluid dispensed from the comb teeth even to allow for satisfactory and uniform application of content fluid to the hair.

[0004]

This cap with a comb of the conventional art consists of a cap body having an upright tube that is flattened in front and rear through a flange-shaped top wall at the upper end of an attachment tube that fits tightly over a mouth tube portion of a squeezable container body, wherein a top plate covering the upper end of this upright tube has a plurality of attachment holes penetrating from top to bottom and evenly spaced in the left-right direction, with frame comb tooth pieces erected at the left-right ends of the top plate; and a comb tooth body having fitting tube pieces forced into a tight fit with the respective attachment holes of the cap body extending downward from the lower surface of a base plate placed on the top plate of the cap body, and comb tooth pieces erected at portions on the upper surface of the base plate directly above the fitting tube pieces, wherein the portions of attachment between the comb tooth pieces and the fitting tube pieces have formed therein dispensing channels extending from the upper ends of the comb tooth pieces to the lower end surfaces of the fitting tube pieces and opening dispensing mouths at left-right side surfaces at the upper ends of the comb tooth pieces; the two bodies being assembled together.

[0005]

The reason for such a two-body structure is that the frame comb tooth pieces at the left and right ends are structured so as not to have any holes in order to prevent the content fluid dispensed from the dispensing mouths of the comb tooth pieces from scattering to the sides (left-right direction) of the comb function portion during use, but it is difficult to integrally mold such comb tooth pieces having holes (dispensing mouths) and frame comb tooth pieces not having holes positioned at the ends thereof using molding pins for forming holes, so a comb tooth body having the comb tooth pieces and a cap body having the frame comb tooth pieces are molded separately and assembled together.

[0006]

PROBLEMS TO BE SOLVED BY THE INVENTION

However, with the conventional art described above, when a gap is formed between a cap body and a comb tooth body that are assembled together, the content fluid can penetrate into the gap and make cleaning difficult.

[0007]

Additionally, if the boundary portion (boundary line) between the cap body and the comb tooth body is visible, then that can detract from the appearance.

[0008]

Additionally, since the internal structure is such that fitting tube pieces forming part of the dispensing channels are fitted into attachment holes to assemble the comb tooth body and the cap body, there are limitations on widening of the cross section of the dispensing channels for raising the dispensing fluidity, as a result of which there are restrictions to how large the dispensing channels can be made in order to raise the dispensing fluidity.

[0009]

Furthermore, molding dies are needed for both the cap body and the comb tooth body, and separate assembly work is needed for the cap body and the comb tooth body, thus raising production costs.

[0010]

Therefore, the present invention was conceived in order to solve the above-described problems of the conventional art, addressing the technical problem of how to integrally mold a cap with a comb comprising comb tooth pieces having dispensing holes and frame comb tooth pieces on both sides thereof, thereby providing a satisfactory sensation of use and high dispensing fluidity, while also improving sanitation and appearance as well as reducing the production costs.

[0011]

MEANS FOR SOLVING THE PROBLEMS

In the present invention which addresses the above-described technical problem, the means of an invention according to claim 1 are achieved by providing an upright tube that is flattened in front and rear through a flange-shaped top wall at the upper end of an attachment tube that fits tightly over a mouth tube portion of a squeezable container body, erecting a plurality of comb tooth pieces that are evenly spaced in a line in the left-right direction towards the center of an upper surface of a top plate provided on the upper end of said upright tube, erecting frame comb tooth pieces at end portions of said top plate; the comb tooth pieces having dispensing holes opening in left-right directions at upper ends thereof and having dispensing channels penetrating from said dispensing holes to a lower surface of said top plate, and being provided with mold release vertical grooves with groove widths at least equal to the lateral width of the openings of said dispensing holes at left-right portions thereof from said dispensing holes to the upper ends; and integrally molding from a synthetic resin material.

[0012]

Since the comb tooth pieces of the cap with a comb are constructed so as to have mold release vertical grooves, there is no need for horizontal release pins to form a portion of the die, thus enabling dispensing holes to be formed and thereby simplifying the die structure and the handling procedure.

[0013]

Since the cap with a comb is integrally molded in its entirety, there are no seams or gaps, thus improving the appearance and eliminating situations in which the content fluid collects in seams or gaps, and thereby raising the dispensing fluidity of the content fluid and making the structure easy to clean.

[0014]

Since the cap with a comb has a unitary structure, the dispensing channels of the comb tooth pieces can be widened without the risk of liquid leaking at the portions of assembly such as in conventional structures, thereby enabling the dispensing fluidity to be easily improved.

[0015]

Since the cap with a comb has a unitary structure, only a single set of molding dies is needed, and there is no need for a step of assembling the constituent parts, thereby largely reducing the production costs.

[0016]

The invention according to claim 2 has the feature of the tips of the comb tooth pieces and frame comb tooth pieces being arranged along a preset radius of curvature based on the radius of curvature of the surface of the human head added to the invention according to claim 1.

[0017]

In the invention according to claim 2, the tips of the comb tooth pieces and frame comb tooth pieces can be brought into roughly simultaneous contact with the surface of the human head when using the cap with a comb, thereby enabling the comb tooth pieces and frame comb tooth pieces to be brought into a good state of contact with the surface of the human head, while also standardizing the positional relationships of the comb tooth pieces with respect to the surface of the human head, thereby making the application of the content fluid to the hair uniform.

[0018]

EMBODIMENTS OF THE INVENTION

Herebelow, examples of the present invention shall be explained with reference to the drawings.

The drawings show an example of the present invention, wherein a cap with a comb 1 integrally molded in its entirety by injection molding a synthetic resin material is assembled with a container body 13 formed by providing a mouth tube portion 15 at the upper end of a squeezable trunk portion 14.

[0019]

On the lower surface of a top wall 3 in the shape of an inner flange attached to the upper end of an assembly tube 2 to be externally screwed onto the mouth tube portion 15 of a container body 13 are provided a short cylindrical sealing tube piece 4 to fit tightly onto the opening of the mouth tube portion 15, and a sealing strip 5 in tight elastic contact with the upper end surface of the mouth tube portion 15, thereby enabling the cap with a comb 1 to be assembled with the mouth tube portion 15 in a liquid-tight fashion.

[0020]

On the upper surface of the top wall 3 stands an upright tube 6 that is flattened in front and rear, with four comb tooth pieces 8 evenly spaced in a line in the left-right direction towards the center of the upper surface of the top plate 7 attached to the upper end of this upright tube 6, and two frame comb tooth pieces 12 standing in line at both side end portions of the top plate 7.

[0021]

The comb tooth pieces 8 have, at the upper ends thereof, dispensing holes 9 opening in left-right

directions, as well as dispensing channels 10 penetrating from these dispensing holes 9 to the lower end surface of the top plate 7.

[0022]

Additionally, the portion of each comb tooth piece 8 above the dispensing hole 9, in other words the left-right portions of the upper end of the comb tooth pieces 8, is provided with mold release vertical grooves 11 having a groove width that is at least equal to the lateral width of the opening of the dispensing holes 9.

[0023]

These mold release vertical grooves 11 are for achieving mold release of mold portions forming the dispensing holes 9 in combination with mold pins for forming the dispensing channels 10.

[0024]

Thus, the mold release vertical grooves 11 form a path for release of the mold portion for forming the dispensing holes 9 in combination with the mold pins, in other words, they form a path for passage of this mold portion in a relatively upward direction.

[0025]

Therefore, not only should it be obvious that the mold release vertical grooves 11 must have a groove width that is at least equal to the lateral width of the openings of the dispensing holes 9, but also their bottom surfaces must be positioned further inside than the surfaces of the dispensing channels 10.

[0026]

Fig. 4 is a section view of a case where the cross sectional area of the dispensing channels 10 in the comb tooth pieces 8 has been enlarged to raise the dispensing fluidity of the content fluid.

[0027]

Since the article is integrally molded, there is no need to provide any assembly portions at the sides of the comb tooth pieces 8, and instead, it is possible to form dispensing channels 10 with an elliptical cross section enlarged to the limit of thickness necessary for retaining the strength of the comb tooth pieces, as indicated by the solid lines.

[0028]

EFFECTS OF THE INVENTION

Due to the structure described above, the present invention provides the following effects. Since the cap with a comb is integrally molded in its entirety without formation of seams or spaces, the appearance is improved and the content fluid will not collect, as a result of which the dispensing fluidity of the content fluid is raised, thus enabling application to the hair to be smoothly and satisfactorily achieved, while also enabling cleaning to be easily performed and thus improving the sanitation.

[0029]

Additionally, since the comb with a cap has a unitary structure, widening the dispensing channels of the comb tooth pieces will not carry the risk of liquid leaking at the assembly portions such as in conventional structures, thus enabling the dispensing fluidity to be

increased.

[0030]

Since the cap with a comb has a unitary structure, there is only need for a single group of molding dies, and a step of assembling parts is not required, thereby greatly reducing the production costs.

[0031]

Since a portion of a mold that opens vertically is used without the need for horizontal release pins, the structure of the mold used can be made simple and it can be easily handled.

[0032]

As for the invention according to claim 2, it provides a very good sensation of use, and allows a constant, uniform application of the content fluid to the hair.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 An overall vertical section view showing an embodiment of the present invention in a state of assembly with a container body

FIG. 2 An overall side view of the embodiment shown in Fig. 1, cut along the line A-A.

FIG. 3 An enlarged section view showing an upper end portion of a comb tooth piece of the embodiment shown in Fig. 1.

FIG. 4 A planar section view showing an embodiment of a comb tooth portion with an enlarged dispensing channel.

DESCRIPTION OF REFERENCE NUMBERS

- 1 cap with comb
- 2 assembly tube
- 3 top wall
- 4 sealing tube piece
- 5 sealing strip
- 6 upright tube
- 7 top plate
- 8 comb tooth piece
- 9 dispensing hole
- 10 dispensing channel
- 11 mold release vertical groove
- 12 frame comb tooth piece
- 13 container body
- 14 trunk portion
- 15 mouth tube portion

DRAWINGS.

FIG. 1

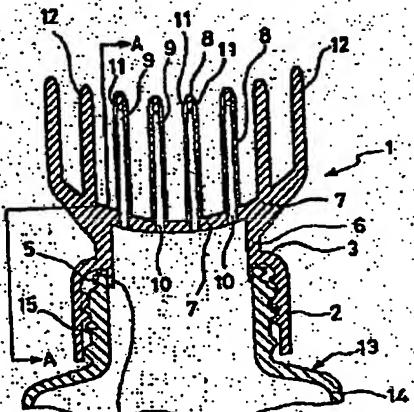


FIG. 2

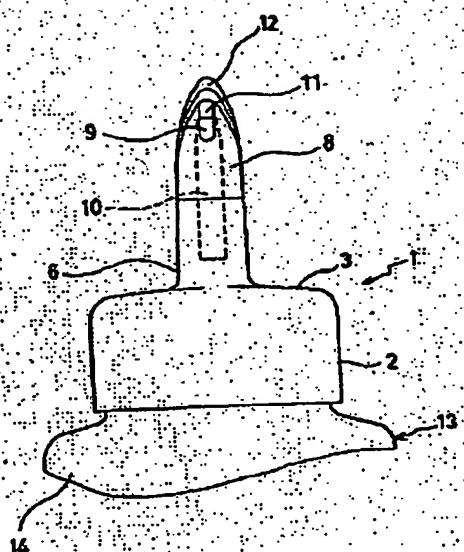


FIG. 3

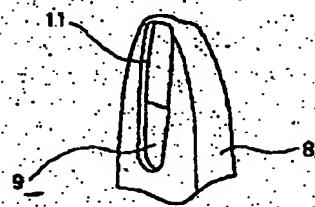


FIG. 4

